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Effects of plyometric training on skill performance in soccer players

Dr. Shrikant S Mahulkar

Abstract

The purpose of the present study was to find out the effect of plyometric training on skill performance in Soccer players. The participants selected for the present study were those who have participated at inter-university level competitions. For the current study soccer players from two different colleges of Sant Gadge Baba Amravati University were selected during the session of 2016-17. The age of the subjects ranged from 18 to 25 years. The 50 subjects were randomly assigned to two groups, one experimental groups and one control group consisting of 50 subjects each. To measure the skill performance by McDonald Soccer Skill Test was use. Six weeks of plyometric training were given to the experimental group. The subjects were involved in regular training in soccer playing during their practice period. Then training was given for five days per week (alternative days). In order to test the effect of training, the collected data from all the two groups before and after experimentation on skill performance of soccer players were statistically analyzed by using 't' test. In all the cases the level of confidence is fixed at 0.05 to test the significance. Result: Significant effect found that skill performance between pre and post-test experimental group and no significant difference in control group. Insignificant difference in skill performance between experimental and control group of before test but significant effect found that skill performance between experimental and control group of after test.

Keywords: plyometric training, skill performance, soccer players

Introduction

Plyometrics, also known as "Jump Training" or "Plyos", are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power (Speed-strength). This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, such as in specialized repeated jumping^[1]. Plyometrics are primarily used by athletes, especially martial artists, sprinters and high jumpers, to improve performance, and are used in the fitness field to a much lesser degree. Plyometrics includes explosive powerful training exercises that are trained to activate the quick response and elastic properties of the major muscles in the body. It was initially made famous by Soviet Olympians in the 1970s, providing the core element in the strength programs of elite sporting athletes worldwide. Sports using plyometrics include basketball, tennis and volleyball as well as the various codes of football^[2].

Methodology

The participants selected for the present study were those who have participated at inter-university level competitions. For the current study soccer players from two different colleges of Sant Gadge Baba Amravati University were selected during the session of 2016-17. The age of the subjects ranged from 18 to 25 years. The 50 subjects were randomly assigned to two groups, one experimental groups and one control group consisting of 50 subjects each. The following were the criterion measures for testing the hypothesis: To measure the skill performance by McDonald Soccer Skill Test was use. Six weeks of plyometric training were given to the experimental group. The subjects were involved in regular training in soccer playing during their practice period. Then training was given for five days per week (Alternative days). Every training session lasted for 40 to 60 minutes. The training program was scheduled for the morning between 6.00 am and 7.00 am. The subjects underwent their respective programme under strict supervision prior to and during every session. Subjects

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underwent a 10-minutes warm up and warm-down exercises which included jogging, stretching, striding and push-ups.

Statistical procedures

In order to test the effect of training, the collected data from

all the two groups before and after experimentation on skill performance of football players were statistically analyzed by using 't' test. In all the cases the level of confidence is fixed at 0.05 to test the significance.

Table 1: Comparison of skill performance between pre and post-test of experimental group

Group	Test	N	Mean	SD	SE	MD	Ot	df	Tt
Experimental	Pre	25	16.16	2.577	0.633	2.000	3.158*	48	2.01
	Post	25	18.16	1.841					

Table-1 shows that the significant difference in skill performance between pre and post-test experimental group.

The obtained 't' value of 3.158 is more than the table value of 2.01 with 48 degree of freedom.

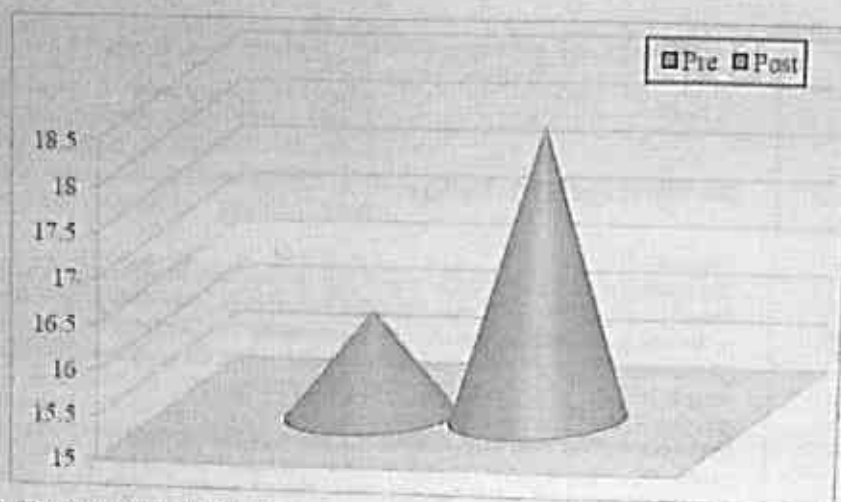


Fig 1: The mean values of skill performance on experimental group pre and post-test of soccer players

Table 2: Comparison of skill performance between pre and post-test of control group

Group	Test	N	Mean	SD	SE	MD	Ot	df	Tt
Control	Pre	25	15.72	3.048	0.798	0.040	0.050	48	2.010
	Post	25	15.68	2.577					

Table-2 shows that the insignificant difference in skill performance between pre and post-test control group. The obtained 't' value of

0.050 is less than the table value of 2.01 with 48 degree of freedom.

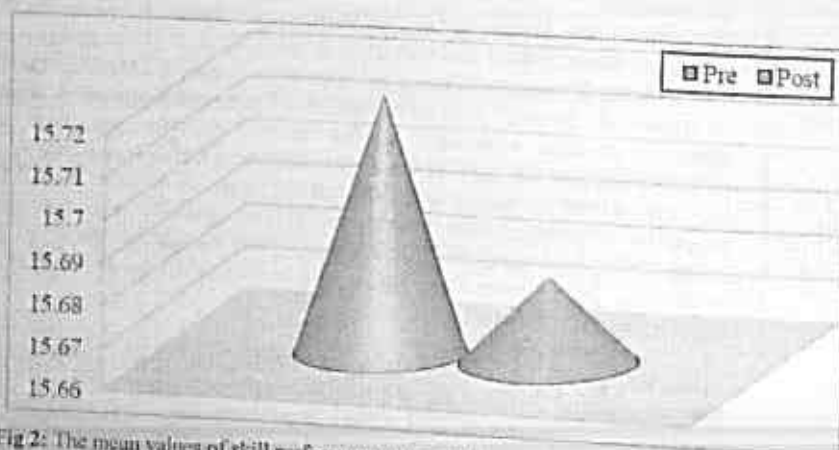


Fig 2: The mean values of skill performance on control group pre and post-test of soccer players

Table 3: Comparison of skill performance between experimental and control group of before test

Group	Test	N	Mean	SD	SE	MD	Ot	df	Tt
Experimental	Pre	25	16.16	2.577	0.798	0.440	0.551	48	2.010
Control		25	15.72	3.048					

Table-3 shows that the insignificant difference in skill performance between experimental and control group of

before test. The obtained 't' value of 0.551 is less than the table value of 2.01 with 48 degree of freedom.

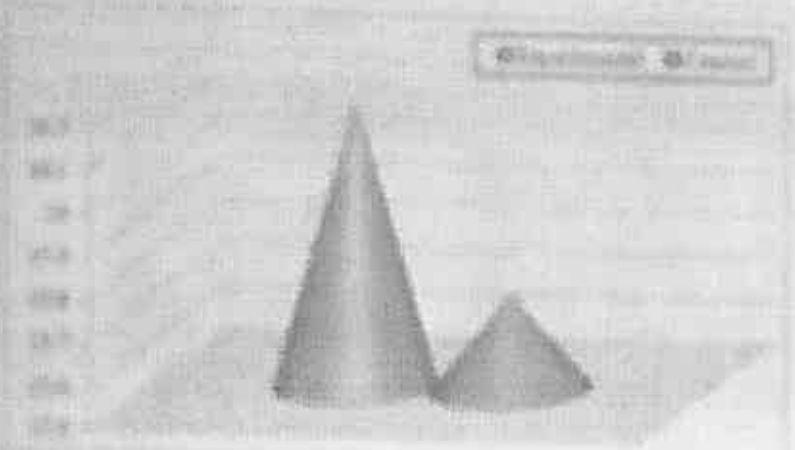


Fig. 6. The mean effect of 100 Hz on skill performance of experimental and control group of after test

Table 4. Comparison of skill performance between experimental and control group of after test

Group	Stat.	N	Mean	SD	SE	95% CI	DF	P	CI
Experimental	F _(1,18)	10	85.00	10.00	3.16	78.68 - 91.32	18	0.002	0.000 - 0.010
Control	F _(1,18)	10	65.00	10.00	3.16	58.68 - 71.32	18	0.002	0.000 - 0.010

Results show that the significant difference in skill performance between experimental and control group of after

test. The obtained P value of 0.002 is more than the 0.05 level of significance with 95% degree of freedom.

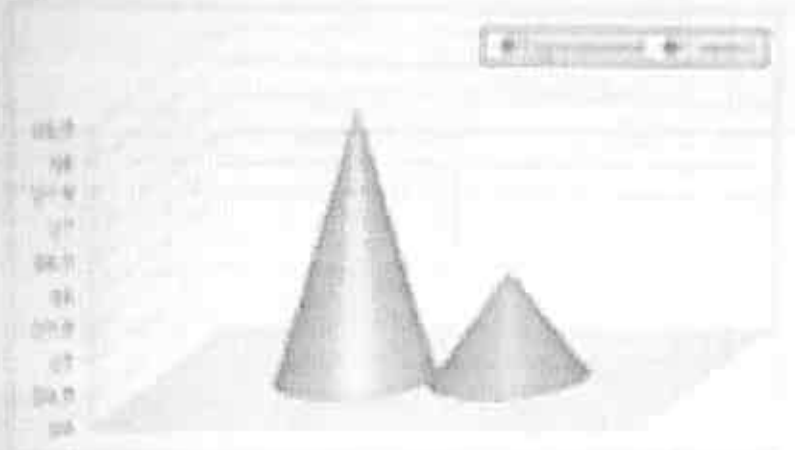


Fig. 7. The mean effect of 100 Hz on skill performance of experimental and control group of after 10 days

Conclusion

Following conclusion of the present study and on the basis of the following conclusions were drawn:

- 1. Significant effect found in skill performance between pre and post on experimental group.
- 2. Significant difference in skill performance between pre and post on control group.
- 3. Significant difference in skill performance between experimental and control group of before test.
- 4. Significant effect found in skill performance between experimental and control group of after test.

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